

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Sandy (Sy) 5-9" Big Horn Basin Precipitation Zone,

Site ID: 032XY150WY

Major Land Resource Area: 32 – Northern Intermountain Desertic Basins

Physiographic Features

This site occurs on nearly level to 20% slopes.

Landform: Alluvial fans, hillsides, plateaus, ridges & stream terraces

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	3700	6000
Slope (percent):	0	20
Water Table Depth (inches):	None within 60 inches	
Flooding:		
Frequency:	None	rare
Duration:	None	brief
Ponding:		
Depth (inches):	0	0
Frequency:	None	rare
Duration:	None	very brief
Runoff Class:	negligible	very high

Climatic Features

Annual precipitation ranges from 5-9 inches per year. The normal precipitation pattern shows peaks in May and June and a secondary peak in September. This amounts to about 50% of the mean annual precipitation. Much of the moisture that falls in the latter part of the summer is lost by evaporation and much of the moisture that falls during the winter is lost by sublimation. Average snowfall is about 20 inches annually. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation.

Temperatures show a wide range between summer and winter and between daily maximums and minimums, due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks from Canada in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Chinook winds may occur in winter and bring rapid rises in temperature. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

High winds are generally blocked from the basin by high mountains, but can occur in conjunction with an occasional thunderstorm.

Site Type: Rangeland
MLRA: 32 – Northern Intermountain Desertic Basins

Sandy (Sy) 5-9 BH
R032XY150WY

Growth of native cool-season plants begins about April 1 and continues to about July 1. Cool weather and moisture in September may produce some green up of cool season plants that will continue to late October.

The following information is from the “Emblem” climate station:

	<u>Minimum</u>	<u>Maximum</u>	<u>5 yrs. out of 10 between</u>
Frost-free period (days):	98	171	May 13 – September 19
Freeze-free period (days):	120	184	May 1 – October 5
Mean Annual Precipitation (inches):	3.22	10.97	

Mean annual precipitation: 7.42 inches

Mean annual air temperature: 45.01°F (31.2°F Avg. Min. to 58.7°F Avg. Max.)

For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at <http://www.wcc.nrcs.usda.gov/> website. Other climate station(s) representative of this precipitation zone include “Basin”, “Deaver”, “Lovell” and “Worland”.

Influencing Water Features

Wetland Description:	<u>System</u>	<u>Subsystem</u>	<u>Class</u>	<u>Sub-class</u>
None	None	None	None	None

Stream Type: None

Representative Soil Features

The soils of this site are moderately deep (greater than 20” to bedrock) to very deep, well-drained soils that formed in alluvium or alluvium over residuum. These soils have moderately slow, moderate, moderately rapid, or rapid permeability. The surface soil will vary from 3 to 6 inches deep. Coarser topsoils may be included if underlain by finer textured subsoil. The soil characteristics having the most influence on plant community are light texture, which can affect the available moisture and amount of calcium carbonates in the profile.

Major Soil Series correlated to this site include: Apron, Griffy, Wallson, and Worland

Other Soil Series correlated in MLRA 32 to this site include:

Parent Material Kind: alluvium, eolian deposits, residuum

Parent Material Origin: sandstone, shale, interbedded sedimentary, unspecified

Surface Texture: fine sandy loam, sandy loam, loamy, very fine sand, sandy clay loam

Surface Texture Modifier: none

Subsurface Texture Group: sandy loam, sandy clay loam, clay loam, loamy sand

Surface Fragments ≤ 3” (% Cover): 0

Surface Fragments > 3” (%Cover): 0

Subsurface Fragments ≤ 3” (% Volume): 0

Subsurface Fragments > 3” (% Volume): 0

Drainage Class:	<u>Minimum</u>	<u>Maximum</u>
Permeability Class:	well drained	excessively well drained
	moderately slow	rapid

Depth (inches):	20	>60
Electrical Conductivity (mmhos/cm) ≤ 20" :	0	8
Sodium Absorption Ratio ≤ 20" :	0	2
Soil Reaction (1:1 Water) ≤ 20" :	7.4	8.4
Soil Reaction (0.1M CaCl₂) ≤ 20" :	NA	NA
Available Water Capacity (inches) ≤ 30" :	1.2	6.3
Calcium Carbonate Equivalent (percent) ≤ 20" :	0	40

Plant Communities

Ecological Dynamics of the Site:

Potential vegetation on this site is dominated by mid cool-season perennial grasses. Other significant vegetation includes big sagebrush, and a variety of forbs. The expected potential composition for this site is about 70% grasses, 15% forbs and 15% woody plants. The composition and production will vary naturally due to historical use, fluctuating precipitation and fire frequency.

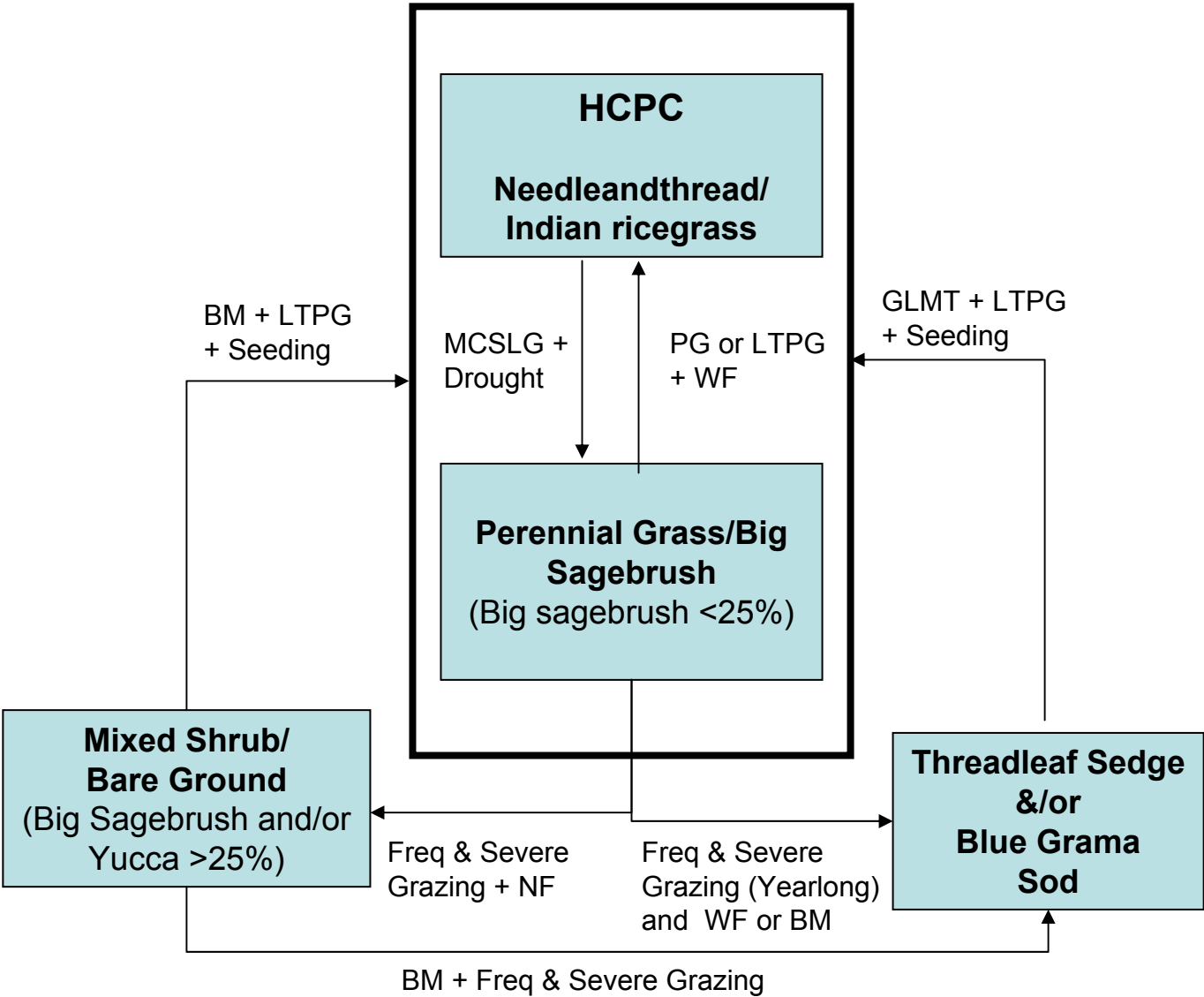
As this site deteriorates, species such as threadleaf sedge, blue grama and big sagebrush will increase. Plains pricklypear and weedy annuals will invade. Cool season grasses such as needleandthread, Indian ricegrass, and rhizomatous wheatgrasses will decrease in frequency and production.

Big sagebrush may become dominant on areas with an absence of fire and sufficient amount of precipitation. Wildfires are actively controlled in recent times and as a result old decadent stands of big sagebrush persist. Chemical control using herbicides has replaced the historic role of fire on this site. Recently, prescribed burning has regained some popularity.

Due to the amount and pattern of the precipitation, the big sagebrush component may not be resilient once it has been removed or severely reduced if a vigorous stand of grass exists and is maintained. On these areas, threadleaf sedge and blue grama may become dominant if the area is subjected to a combination of frequent and severe grazing especially yearlong grazing. As a result, a dense sod cover of threadleaf sedge and blue grama will become established.

The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.



- BM** - Brush Management (fire, chemical, mechanical)
- Freq. & Severe Grazing** - Frequent and Severe Utilization of the Cool-season Mid-grasses during the Growing Season
- GLMT** - Grazing Land Mechanical Treatment
- LTPG** - Long-term Prescribed Grazing
- MCSLG** - Moderate, Continuous Season-long Grazing
- NU, NF** - No Use and No Fire
- PG** - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season)
- VLTPG** - Very Long-term Prescribed Grazing (could possibly take generations)
- WF** - Wildfire (Natural or Human Caused)

Plant Community Composition and Group Annual Production
Reference Plant Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year)		
			Total: 400		
			Group	lbs./acre	% Comp.
GRASSES AND GRASS-LIKES					
GRASSES/GRASSLIKES					
Rhizomatous wheatgrass			1	20 - 60	5 - 15
Western wheatgrass	Pascopyrum smithii	PASM			
Thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	ELLAL			
Streambank wheatgrass	Elymus lanceolatus	ELLA3			
Needleandthread grass	Hesperostipa comata	HECO26	2	120 - 200	30 - 50
Indian ricegrass	Achnatherum hymenoides	ACHY	3	40 - 80	10 - 20
Prairie junegrass	Koeleria macrantha	KOMA	4	20 - 40	5 - 10
Bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	5	20 - 40	5 - 10
MISC. GRASSES/GRASSLIKES			6	0 - 40	0 - 10
Blue grama	Bouteloua gracilis	BOGR2	6	0 - 20	0 - 5
Sand dropseed	Sporobolus cryptandrus	SPCR	6	0 - 20	0 - 5
Sandberg bluegrass	Poa secunda	POSE	6	0 - 20	0 - 5
Threadleaf sedge	Carex filifolia	CAFI	6	0 - 20	0 - 5
Threeawns	Aristida spp.	ARIST	6	0 - 20	0 - 5
other perennial grasses (native)		2GP	6	0 - 20	0 - 5
FORBS			7	20 - 60	5 - 15
False carrot	Turgenia spp.	TURGE	7	0 - 20	0 - 5
Fleabane	Erigeron spp.	ERIGE2	7	0 - 20	0 - 5
Phlox	Phlox spp.	PHLOX	7	0 - 20	0 - 5
Scarlet globemallow	Sphaeralcea coccinea	SPCO	7	0 - 20	0 - 5
Wild onion	Allium textile	ALTE	7	0 - 20	0 - 5
other perennial forbs (native)		2FP	7	0 - 20	0 - 5
TREES/SHRUBS					
Big sagebrush	Artemisia tridentata	ARTR2	8	20 - 60	5 - 15
MISC. SHRUBS			9	0 - 40	0 - 10
Green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8	9	0 - 20	0 - 5
Rubber rabbitbrush	Ericameria nauseosa	ERNA10	9	0 - 20	0 - 5
Spiny hopsage	Grayia spinosa	GRSP	9	0 - 20	0 - 5
Winterfat	Krascheninnikovia lanata	KRAL2	9	0 - 20	0 - 5
other shrubs & half shrubs (native)		2SHRUB	9	0 - 20	0 - 5

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors.

Plant Community Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as “Desired Plant Communities”. According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC’s) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Needleandthread/Indian Ricegrass Plant Community

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores and periodic fires. The cyclical nature of the fire regime in this community prevented big sagebrush from being the dominant landscape. This plant community can be found on areas that are properly managed with grazing and/or prescribed burning, and on areas receiving occasional short periods of rest. The state is mostly cool season mid-grasses and a variety of forbs and woody species. Potential vegetation is about 70% grasses or grass-like plants, 15% forbs, and 15% woody plants.

The major grasses include needleandthread, Indian ricegrass and rhizomatous wheatgrasses. Other grasses occurring in the state include Sandberg bluegrass, blue grama, threadleaf sedge, and threeawns. Big sagebrush is a conspicuous component of this state. A variety of forbs also occurs in this state and plant diversity is high (see Plant Composition Table).

The total annual production (air-dry weight) of this state is about 400 lbs. /acre, but it can range from about 225 lbs. /acre in unfavorable years to about 600 lbs. /acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: WYO501

Growth curve name: 5-9BH, UPLAND SITES

Growth curve description: ALL UPLAND SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	15	50	20	5	0	10	0	0	0

(Monthly percentages of total annual growth)

The state is stable and well adapted to the Northern Intermountain Desertic Basins climatic conditions. The diversity in plant species allows for high drought resistance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- Moderate, Continuous Season-Long grazing will convert the plant community to the *Perennial Grass/Big Sagebrush Plant Community*. Prolonged drought will exacerbate this transition.

Perennial Grass/Big Sagebrush Plant Community

Historically, this plant community evolved under grazing and a low fire frequency. Currently, it is found under moderate, season-long grazing by livestock and will be exacerbated by prolonged drought conditions. In addition, the fire regime for this site has been modified and extended periods without fire is now common. This plant community is still dominated by cool-season grasses, while short grasses/grasslikes and miscellaneous forbs account for the balance of the understory. Wyoming big sagebrush is now a conspicuous part of the overall production and accounts for the majority of the overstory.

The understory of grass and grass-like plants includes needleandthread, rhizomatous wheatgrasses, blue grama, threadleaf sedge, and Sandberg bluegrass. Forbs commonly found in this plant community include scarlet globemallow, fringed sagewort, lemon scurfpea, sulfur buckwheat, hairy goldaster, and phlox. Sagebrush can make up to 25% of the annual production. The overstory of sagebrush and understory of grass and forbs provide a diverse plant community.

When compared to the Historic Climax Plant Community, needleandthread, Indian ricegrass, and winterfat have decreased. Indian ricegrass may occur in only trace amounts under the sagebrush canopy or within the patches of pricklypear. Threadleaf sedge, blue grama and big sagebrush have increased. Plains pricklypear cactus will also have increased, but occurs only in small patches.

The total annual production (air-dry weight) of this state is about 320 pounds per acre, but it can range from about 180 lbs. /acre in unfavorable years to about 480 lbs. /acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: WYO501

Growth curve name: 5-9BH, UPLAND SITES

Growth curve description: ALL UPLAND SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	15	50	20	5	0	10	0	0	0

Monthly percentages of total annual growth)

This plant community is resistant to change. The herbaceous species present are well adapted to grazing; however, species composition can be altered through long-term overgrazing. The herbaceous component is mostly intact and plant vigor and replacement capabilities are sufficient. Water flow patterns and litter movement may be occurring but only on steeper slopes. Incidence of pedestalling is minimal. Soils are mostly stable and the surface shows minimum soil loss. The watershed is functioning and the biotic community is intact.

Transitional pathways leading to other plant communities are as follows:

- Prescribed grazing or possibly long-term prescribed grazing, will convert this plant community to the *HCPC*. The probability of this occurring is high especially if rotational grazing along with short deferred grazing is implemented as part of the prescribed method of use. In addition, the removal of fire suppression will allow a somewhat natural fire regime to reoccur to more easily transition between this plant community and the *HCPC*. A prescribed fire treatment can be useful to hasten this transition if desired.
- Frequent and severe grazing plus no fire will convert this plant community to the *Mixed Shrub/Bare Ground Plant Community*. The probability of this occurring is high. This is

especially evident on areas with historically higher precipitation and the sagebrush stand is not adversely impacted by drought or heavy browsing.

- Frequent and severe grazing (yearlong grazing), will convert the plant community to the *Threadleaf Sedge and/or Blue Grama Sod Plant Community*. The probability of this occurring is high especially if the sagebrush stand has been severely affected by drought or heavy browsing or has been removed by wildfire or brush management.

Mixed Shrub/Bare Ground Plant Community

This plant community is the result of frequent and severe grazing and protection from fire. Sagebrush eventually dominates this plant community, as the annual production of sagebrush will exceed 25%. Yucca on coarser soils can also be a major part of this plant community. These shrub species are a significant component of the plant community and the preferred cool season grasses have been eliminated or greatly reduced.

The dominant grasses are Sandberg bluegrass, threadleaf sedge, and blue grama. Weedy annual species such as cheatgrass may occupy the site if a seed source is available. Patches of pricklypear cactus can be noticeable. Noxious weeds such as Russian knapweed, leafy spurge, or Canada thistle may invade the site if a seed source is available. The interspaces between plants have expanded leaving the amount of bare ground more prevalent. As compared with the HCPC or the Perennial Grass/Big Sagebrush Plant Communities, the annual production is similar, as the shrub production compensates for the decline in the herbaceous production.

The total annual production (air-dry weight) of this state is about 300 pounds per acre, but it can range from about 150 lbs. /acre in unfavorable years to about 400 lbs. /acre in above average years.

The following is the growth curve of the plant community expected during a normal year:

Growth curve number: WYO501

Growth curve name: 5-9BH, UPLAND SITES

Growth curve description: ALL UPLAND SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	15	50	20	5	0	10	0	0	0

(Monthly percentages of total annual growth)

This plant community is resistant to change as the stand becomes more decadent. These areas may actually be more resistant to fire as less fine fuels are available and the bare ground between the sagebrush plants is increased. Continued frequent and severe grazing or the removal of grazing does not seem to affect the composition or structure of the plant community. Plant diversity is moderate to poor. The plant vigor is diminished and replacement capabilities are limited due to the reduced number of cool-season grasses. Plant litter is noticeably less when compared to the HCPC.

Soil erosion has accelerated because of increased bare ground. Water flow patterns and pedestalling are obvious. Infiltration is reduced and runoff has increased. Rill channels may be noticeable in the interspaces and gullies may be establishing where rills have concentrated down slope.

Transitions or pathways leading to other plant communities are as follows:

- Brush management, followed by prescribed grazing and possible reseeding will return this plant community at or near the HCPC. If prescribed fire is used as a means to reduce or remove the

shrubs, sufficient fine fuels will need to be present. This may require deferment from grazing prior to treatment. Post management is critical to ensure success. This can range from two or more years of rest to partial growing season deferment, depending on the condition of the understory at the time of treatment and the growing conditions following treatment. In the case of an intense wildfire that occurs when desirable plants are not completely dormant the length of time required to reach the *HCPC* may be increased and seeding of natives is recommended.

- Brush management, followed by frequent and severe grazing, will convert the plant community to the *Threadleaf Sedge and/or Blue Grama Sod Plant Community*.

Threadleaf Sedge and/or Blue Grama Sod Plant Community

This plant community is the result of frequent and severe yearlong grazing. A sod of threadleaf sedge and blue grama dominate the site. Pricklypear cactus can become dense enough in patches so that livestock cannot graze forage growing within the cactus clumps. Big sagebrush has been reduced and in some cases removed.

When the historic climax community is replaced by sod forming communities, grass production as well as total production is significantly reduced. All cool-season mid-grasses and forbs have been greatly reduced or removed. Plant diversity is extremely low.

The total annual production (air-dry weight) of this state is about 100 pounds per acre, but it can range from about 55 lbs. /acre in unfavorable years to about 150 lbs. /acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: WYO501

Growth curve name: 5-9BH, UPLAND SITES

Growth curve description: ALL UPLAND SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	15	50	20	5	0	10	0	0	0

(Monthly percentages of total annual growth)

This sod is extremely resistant to change and continued frequent and severe grazing or the removal of grazing does not seem to affect the plant composition or structure of the plant community. The biotic integrity of this state is not functional and plant diversity is extremely low. Plant vigor is significantly weakened and replacement capabilities are limited due to the reduced number of cool-season grasses. The biotic integrity of this plant community is not intact.

This sod bound plant community is very resistant to water infiltration. While this sod protects the site itself, off-site areas are affected by excessive runoff that can cause rills and gully erosion. Water flow patterns are obvious in the bare ground areas and pedestalling is apparent along the sod edges. Rill channels are noticeable in the interspaces and gullies may be establishing where rills have concentrated down slope. The watershed may or may not be functioning, as runoff may affect adjoining sites.

Transitional pathways leading to other plant communities are as follows:

- Grazing land mechanical treatment (chiseling, etc.) and reseeding and pricklypear cactus control (if needed), followed by prescribed grazing, will return this plant community to near *Historic Climax Plant Community* condition.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Historic Climax Plant Community: The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouse, as well as lek sites. Other birds that would frequent this plant community include western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

Perennial Grass/Big Sagebrush Plant Community: The combination of an overstory of sagebrush and an understory of grasses and forbs provide a very diverse plant community for wildlife. The crowns of sagebrush tend to break up hard crusted snow on winter ranges, so mule deer and antelope may use this state for foraging and cover year-round, as would cottontail and jack rabbits. It provides important winter, nesting, brood-rearing, and foraging habitat for sage grouse. Brewer's sparrows' nest in big sagebrush plants and hosts of other nesting birds utilize stands in the 20-30% cover range.

Mixed Shrub/Bare Ground Plant Community: This plant community can provide important winter foraging for elk, mule deer and antelope, as sagebrush can approach 15% protein and 40-60% digestibility during that time. This community provides excellent escape and thermal cover for large ungulates, as well as nesting habitat for upland game birds. However, it provides little foraging opportunities for upland game birds, as fewer forbs are available. Many grassland obligate small mammals would occur here.

Threadleaf Sedge and/or Blue Grama Sod Plant Community: These communities provide limited foraging for antelope and other grazers. They may be used as a foraging site by sage grouse if proximal to woody cover and if the Historic Climax Plant Community or the Perennial Grass/Big Sagebrush Plant Community is limited. Generally, these are not target plant communities for wildlife habitat management.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occuring plants in MLRA 32, 5-9 inch Bighorn Basin

COMMON NAME/ GROUP NAME	SCIENTIFIC NAME	SCIENTIFIC SYMBOL	Cattle	Sheep	Horses	Deer	Antelope
GRASSES/GRASSLIKES							
Alkali bluegrass	Poa juncifolia (syn. P. secunda)	POJU (POSE)	DDDD	PPPP	DDDD	PPPP	PPPP
Alkali cordgrass	Spartina gracilis	SPGR	DDDD	UUUU	DDDD	UUUU	UUUU
Alkali sacaton	Sporobolus airoides	SPA1	PPPP	DDDD	PPPP	DDDD	DDDD
Baltic rush	Juncus balticus	JUBA	DDDD	UUUU	DDDD	UUUU	UUUU
Basin wildrye	Leymus cinereus	LECI4	PPPP	PPPP	PPPP	DDDD	DDDD
Beaked sedge	Carex rostrata	CAR06	DDDD	UUUU	DDDD	UUUU	UUUU
Blue grama	Bouteloua gracilis	BOGR2	DDDD	DDDD	DDDD	DDDD	DDDD
Bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	PPPP	PPPP	PPPP	DDDD	DDDD
Bottlebrush squiiretail	Elymus elymoides	ELEL5	DDDD	DDDD	DDDD	UUUU	DDDD
Canada wildrye	Elymus canadensis	ELCA4	PPPP	PPPP	PPPP	DDDD	DDDD
Golden sedge	Carex aurea	CAAU3	DDDD	DDDD	DDDD	UUUU	UUUU
Indian ricegrass	Achnatherum hymenoides	ACHY	PPPP	PPPP	PPPP	PPPP	PPPP
Inland saltgrass	Distichlis spicata	DISP	UUUU	UUUU	UUUU	UUUU	UUUU
Inland sedge	Carex interior	CAIN11	DDDD	DDDD	DDDD	UUUU	UUUU
Nebraska sedge	Carex nebrascensis	CANE2	PPPP	PPPP	PPPP	DDDD	DDDD
Needleandthread	Hesperostipa comata	HECO26	PPPP	PPPP	PPPP	PPPP	PPPP
Nuttall's alkilgrass	Puccinellia nuttalliana	PUNU2	PPPP	PPPP	PPPP	PPPP	PPPP
Prairie junegrass	Koeleria macrantha	KOMA	DDDD	DDDD	DDDD	DDDD	DDDD
Prairie sandreed	Calamovilfa longifolia	CALO	PPPP	UUUU	PPPP	UUUU	UUUU
Red threeawn	Aristida purpurea	ARPUL	UUUU	UUUU	UUUU	UUUU	UUUU
Sand dropseed	Sporobolus cryptandrus	SPCR	DDDD	DDDD	DDDD	UUUU	UUUU
Sandberg bluegrass	Poa secunda	POSE	DDDD	DDDD	DDDD	DDDD	DDDD
Slender wheatgrass	Elymus trachycalyx	ELTR7	PPPP	DDDD	PPPP	DDDD	DDDD
Streambank wheatgrass	Elymus lanceolatus	ELLA3	DDDD	DDDD	DDDD	DDDD	DDDD
Thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	ELLAL	DDDD	DDDD	DDDD	DDDD	DDDD
Threadleaf sedge	Carex filifolia	CAFI	DDDD	DDDD	DDDD	DDDD	DDDD
Threeawns	Aristida spp.	ARIST	UUUU	UUUU	UUUU	UUUU	UUUU
Tufted hairgrass	Deschampsia caespitosa	DECA18	PPPP	PPPP	PPPP	DDDD	DDDD
Upland sedge	Carex spp.	CAREX	DDDD	DDDD	DDDD	DDDD	DDDD
Water sedge	Carex aquatilis	CAAQ	DDDD	UUUU	DDDD	UUUU	UUUU
Western wheatgrass	Pascopyrum smithii	PASM	DDDD	DDDD	DDDD	DDDD	DDDD
FORBS							
Alkali seepweed	Suaeda spp.	AGOSE	UUUU	UUUU	UUUU	UUUU	UUUU
Arrowgrass	Triglochin spp.	TRIGL	TTTT	TTTT	TTTT	TTTT	TTTT
Asters	Eucephalus spp.	EUCEP2	UUUU	UUUU	UUUU	UUUU	UUUU
Biscuitroot	Lomatium spp.	LOMAT	DDDD	DDDD	UUUU	DDDD	DDDD
Blue-eyed grass	Sisyrinchium spp.	SISYR	UUUU	UUUU	UUUU	UUUU	UUUU
Buckwheats	Eriogonum spp.	ERIOG	UUUU	DDDD	UUUU	UUUU	UUUU
Dock	Rumex spp.	RUMEX	UUUU	UUUU	UUUU	UUUU	UUUU
Evening primrose	Oenothera caespitosa	OECA10	UUUU	UUUU	UUUU	UUUU	UUUU
False carrot	Turgenia spp.	TURGE	UUUU	DDDD	UUUU	UUUU	UUUU
Fleabanes	Erigeron spp.	ERIGE2	DDDD	DDDD	DDDD	DDDD	DDDD
Horsetails	Equisetum spp.	EQUIS	UUUU	UUUU	TTTT	UUUU	UUUU
Iris	Iris spp.	IRIS	UUUU	UUUU	UUUU	UUUU	UUUU
Larkspur (poisonous in spring before flowering)	Delphinium spp.	DELPH	DDDD	DDDD	DDDD	DDDD	DDDD
Milkvetch	Astragalus spp.	ASTRA	DDDD	DDDD	DDDD	DDDD	DDDD
Nailwort	Paronychia spp.	PARON	UUUU	UUUU	UUUU	UUUU	UUUU
Paintbrush	Castilleja spp.	CAST	DDDD	DDDD	DDDD	DDDD	DDDD
Penstemons	Penstemon spp.	PENST	PPPP	PPPP	PPPP	PPPP	PPPP
Phlox	Phlox spp.	PHLOX	UUUU	UUUU	UUUU	UUUU	UUUU
Princesplume	Stanleya spp.	STANL	TTTT	TTTT	TTTT	TTTT	TTTT
Pussytoes	Antennaria spp.	ANTEN	UUUU	UUUU	UUUU	UUUU	UUUU
Salsify	Tragopogon porrifolius	TRPO	UUUU	UUUU	UUUU	UUUU	UUUU
Scarlet globemallow	Sphaeralcea coccinea	SPCO	DDDD	DDDD	DDDD	DDDD	DDDD
Stemless hymenoxys	Tetranneuris acaulis	TEACA2	UUUU	UUUU	UUUU	UUUU	UUUU
Stonecrop	Sedum spp.	SEDUM	UUUU	UUUU	UUUU	UUUU	UUUU
Toadflax	Comandra umbellata	COUMP	UUUU	UUUU	UUUU	UUUU	UUUU
Wild onion	Allium textile	ALTE	DDDD	DDDD	DDDD	DDDD	DDDD
Woody aster	Xylorhiza spp.	XYLOR	TTTT	TTTT	TTTT	TTTT	TTTT
TREES, SHRUBS & HALF-SHRUBS							
Big sagebrush	Artemisia tridentata	ARTR2	DDDD	DDDD	UUUU	DDDD	DDDD
Birdfoot sagebrush	Artemisia pedatifida	ARPE6	UUUU	UUUU	UUUU	UUUU	UUUU
Black sagebrush	Artemisia nova	ARNO4	UUUU	PPPP	UUUU	PPPP	PPPP
Bud sagebrush	Picrothamnus desertorum	PIDE4	PPPP	PPPP	DDDD	PPPP	PPPP
Cottonwoods (sprouts)	Populus spp.	POPUL	PPPP	PPPP	PPPP	PPPP	UUUU
Fourwing saltbush	Atriplex canescens	ATCA2	PPPP	PPPP	PPPP	PPPP	PPPP
Gardners saltbush	Atriplex gardneri	ATGA	PPPP	PPPP	DDDD	PPPP	PPPP
Greasewood (toxic in large amounts)	Sarcobatus vermiculatus	SAVE4	DDDD	DDDD	UUUU	DDDD	DDDD
Junipers	Juniperus scopulorum	JUSC2	UUUU	UUUU	UUUU	DDDD	UUUU
Green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8	DDDD	DDDD	UUUU	PPPP	PPPP
Rubber rabbitbrush	Ericameria nauseosa	ERNA10	UUUU	PPPP	UUUU	DDDD	PPPP
Shadscale	Atriplex confertifolia	ATCO	UUUU	UUUU	UUUU	UUUU	UUUU
Silver buffaloberry	Shepherdia argentea	SHAR	UUUU	UUUU	UUUU	UUUU	UUUU
Silver sagebrush	Artemisia cana	ARCA13	DDDD	DDDD	DDDD	PPPP	PPPP
Skunkbush sumac	Rhus trilobata	RHTR	DDDD	DDDD	UUUU	DDDD	DDDD
Spiny hopsage	Grayia spinesa	GRSP	UUUU	UUUU	UUUU	UUUU	UUUU
Wildrose	Rosa woodsii var. woodsii	ROWOW	DDDD	DDDD	UUUU	DDDD	DDDD
Willows	Salix spp.	SALIX	PPPP	PPPP	DDDD	PPPP	UUUU
Winterfat	Krascheninnikovia lanata	KRAL2	PPPP	PPPP	PPPP	PPPP	PPPP
Yucca	Yucca spp.	YUCCA	DDDD	DDDD	UUUU	DDDD	DDDD

N = not used; U = undesirable; D = desirable; P = preferred; T = toxic

Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community	Production (lb. /ac)	Carrying Capacity* (AUM/ac)
Historical Climax Plant Community	225-600	.20
Perennial Grass/Big Sagebrush	180-480	.16
Mixed Shrub/Bare Ground	150-400	.10
Threadleaf Sedge and/or Blue Grama Sod	55-150	.05

* - Continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B, with localized areas in hydrologic group C. Infiltration potential for this site varies from moderately rapid to rapid depending on soil hydrologic group and ground cover. Runoff varies from low to moderate. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

Recreational Uses

This site provides hunting opportunities for upland game species. The wide varieties of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products

No appreciable wood products are present on the site.

Other Products

None noted.

Supporting Information

Associated Sites

Shallow Sandy	032XY166WY
Loamy	032XY122WY
Clayey	032XY104WY
Lowland	032XY128WY
Gravelly	032XY112WY

Similar Sites

() – Sandy 10-14" Foothills and Basin East P.Z., R032XY350WY has higher production.

Inventory Data References (narrative)

Information presented here has been derived from NRCS inventory data. Field observations from range trained personnel were also used. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Inventory Data References

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
SCS-RANGE-417	19	1965-1986	WY	Park & others

State Correlation

This site occurs entirely within Wyoming.

Type Locality

Field Offices

Cody, Greybull, Lovell, Powell, Thermopolis, Worland

Relationship to Other Established Classifications

Other References

Site Description Approval

State Range Management Specialist

Date